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text-book is due to the division of labor made possible by having four collaborators, each a specialist in the section he treats.

Was it pure accident that exactly one-fourth of the pages are by Strasburger, on morphology, one-fourth by Noll, on physiology, while in the remaining half, the cryptogams, by Schenck, yield a little to the phanerogams, by Schimper? There seems something too much of exactness here for pure accident, particularly as one would hardly expect such a division of space from the nature of the subjects.

It is difficult, where all is so good, to point out the best; yet every reader will concede the palm to the first half of the book. External morphology is cut rather short by Professor Strasburger, and we are so charmed by his treatment of the internal morphology that we are less ready to forgive him the abbreviation. The presentation of the physiology is particularly clear and effective. But the enumeration of the characters of each order, and even of each family among the phanerogams, seems to us barren and unfruitful. Why can we not have a treatment of special morphology which shall be more thoroughly comparative? There is need to organize the facts known so that they shall form for the student a body of symmetric truth, rather than remain disconnected members, related indeed, but scattered as it were in a valley of dry bones. Some attempt at this indeed is made by both Schenck and Schimper, and with much greater success by the former. Schimper seems less able to free himself from the overpowering precedents in the treatment of phanerogams, so that one finds less that is fresh or suggestive here than in any other part of the book.

Yet it is all good after its kind; well put, well printed, excellently illustrated. The colored figures are rather for show than of value, though they are quite truthful in color. We hope soon to welcome an English translation of this excellent book.—C. R. B.

MINOR NOTICES.

MR. B. T. GALLOWAY has prepared a brief paper upon "Frosts and freezes as affecting cultivated plants," in which he has brought together some of the more important facts relating to frosts and freezes as affecting the farmer, gardener, and fruit grower. The paper appears in the Yearbook of the Department of Agriculture for 1895, or may be obtained as a separate.—J. M. C.

MR. A. S. HITCHCOCK, in the last bulletin (no. 57) from the Kansas Experiment Station, which is the third contribution upon the subject of Kansas weeds, introduces some useful features in presentation. Instead of the customary bare list, with perhaps a few notes, the list is a descriptive one, with easy artificial keys; numerous plates give typical leaves, to aid in iden-

tification; and the distribution by counties of almost all the species is shown upon 172 reduced maps.—J. M. C.

THE FIRST REPORT on the flora of Wyoming by the botanist of the Experiment station, Mr. Aven Nelson, has just appeared (May) as Bulletin no. 28. The list of species, with full notes, contains 1118 spermatophytes, all of which are represented in the herbarium of the station. A very convenient feature of the report is that it also contains lists of plants reported for the state but not represented in the herbarium. Fourteen new forms are described, eleven of them as varieties, and three as species (*Aquilegia Laramiensis*, *Potentilla pinnatisecta*, and *Hymenopappus ligulæflorus*).—J. M. C.

ACCORDING TO Mr. Herbert J. Webber, who has studied the pineapple industry in the United States, this tropical fruit, indigenous to South America, is being so extensively cultivated in southern Florida as to be worthy of consideration. The sources of large supply for the United States have been and still are the West Indies and Bahamas, but with about 2500 acres already in cultivation in Florida and the possibility of large extension, increased demand for the fruit may be met by home supply. Mr. Webber presents a full report of his studies in the Yearbook of the Department of Agriculture for 1895.—J. M. C.

THE TUMBLING MUSTARD (*Sisymbrium altissimum*) has begun to attract the attention of those interested in agriculture. Apparently a native of the Mediterranean region, it has spread throughout Europe, northern Africa, and western Asia, as a troublesome weed in cultivated fields and meadows. During the past five years it has made extensive inroads in the Canadian northwest provinces, and now it is reported from nine different localities in the United States, ranging across the continent, and as far south as Missouri. Its method of seed dispersion is indicated by its popular name. The Department of Agriculture has sounded a note of warning, and has given all necessary information, in Circular no. 7, issued from the Division of Botany, and prepared by Mr. Lyster H. Dewey.—J. M. C.

IT MUST BE that such books have a distinct place to fill, or they could not run to third editions as has Mathews' *Familiar Flowers*.⁵ This one has its striking merit in its illustrations, most of which are accurate and altogether admirable, though the author, who is likewise the artist, sometimes fails to catch the texture of his leaves. But the illustrations allow ready identification of the commoner attractive plants of the northeastern states. The chatty

⁵ MATHEWS, F. SCHUYLER :—Familiar flowers of field and garden, described and illustrated, with over 200 drawings by the author, and a systematical index and floral calendar. Third edition, 12 mo. pp. viii + 308. New York: D. Appleton & Co. 1896.

notes which accompany each figure are interesting, but unfortunately sometimes "popularize" facts at the expense of accuracy. It needs to be insisted upon that simplicity of statement need not involve any inaccuracy. Why, for example, should the author mislead his readers by comparing the chicory head with a single flower in this wise: "Not only these straps, but the center of the flower (the stamens and styles) looks very much like the dandelion." And of the everlasting (*Gnaphalium*) he writes: ". . . the little white flowers are so much like miniature pond lilies under the microscope that the resemblance is amusing," For the readers, however, these slips will not be disquieting, and are only worth mention because they mar an otherwise good book.—C. R. B.

ONE OF THE most interesting contributions from the National Herbarium is that by Mr. P. A. Rydberg upon the flora of the Black Hills of South Dakota.⁶ The region is often called an intermediate one, because the floras both east and west of it have received more attention. The report, therefore, deals with one of the regions most in need of investigation. In his prefatory discussion Mr. Rydberg deals with such topics as geography, geology, altitudes, precipitation and temperature, and floral districts. Under the last topic he considers five districts differing in topographical and climatic conditions, and hence in vegetation. They are the foothills, Minnekahta plains, Harney mountain range, limestone district, and northern hills. It is interesting to note that the characteristic plants of the foothill region are grouped as follows: very hairy plants; plants with a glaucous foliage having a hard epidermis; plants with white, often shreddy, stems; plants in which the surface is reduced to a minimum; and plants with a deep-seated, enlarged root. The catalogue of species, which is full of valuable notes as to range and habit, contains about 700 spermatophytes and pteridophytes. One of the most interesting discoveries was that of true *Aquilegia brevistyla* in the United States, the plant from the Rocky mountains heretofore bearing that name having been proved to be quite a distinct species, which Mr. Rydberg has called *A. saximontana*. The plates consist of a good map of the region the two *Aquilegias* referred to, and *Poa pseudoprattensis*, a new grass.—J. M. C.

NOTES FOR STUDENTS.

ROSENBERG has found⁷ that in herbaceous perennials differences in the starch content exist in the course of the winter similar to those well known in trees through the very exhaustive researches of Fischer.—C. R. B.

⁶ RYDBERG, P. A.—Flora of the Black Hills of South Dakota. Contributions from the U. S. National Herbarium 3: 463-536. 1896. [No. 8.]

⁷ Bot. Centralb. 66: 337. 1896.